CITY OF KIMBERLY (PWS 5420033)
SOURCE WATER ASSESSMENT FINAL REPORT

July 31, 2001

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for the City of Kimberly, Kimberly, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries for Wells #1, #2, #3, #5, and #6 (Kimberly wells). This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The City of Kimberly (PWS 5420033) drinking water system consists of five ground water sources. Wells #1-3 are manifolded together and Wells #5 and #6 are manifolded together. A review of the Idaho Drinking Water Information System (DWIMS) revealed water quality information for the City of Kimberly drinking water system. The sample locations for the five wells are located at the two manifolds. Consequently, any chemical detections recorded in DWIMS for the Well 1, 2, 3 Booster apply to wells #1-3, while detections recorded for the Main Booster Station apply to wells #5 and #6. Wells #5 and #6 also have individual sample ports and corresponding individual chemical sampling results. No microbial contaminants were detected in water samples collected from the Kimberly wells or the two booster stations.

In January 2000 and again in September 2000, trihalomethanes, a volatile organic compound (VOC), were detected in water samples collected from both booster stations at concentrations well below the Maximum Contaminant Level (MCL). The City of Kimberly treats its drinking water with chlorine prior to distribution. Trihalomethanes are expected in water treated with chlorine. Consequently, the detection of trihalomethanes in the treated water is not considered source water contamination. In September 2000 and again in December 2000, the VOC tetrachloroethylene (pce) was detected in three water samples collected from the Main Booster Station (Wells #5 and #6) at concentrations of 0.5 micrograms per liter (µg/l), 0.5 µg/l, and 0.31 µg/l, respectively. In November 1995, pce was detected in a water sample collected from Well #6 at a concentration of 0.9 µg/l. The MCL for pce is 5.0 µg/l. No VOC detections, other than trihalomethanes were recorded for wells #1-3.

In September 1998 and again in September 2000, the synthetic organic compound (SOC) Di (2-ethylhexyl) phthalate was detected in a water samples collected from the Well 1, 2, 3 Booster at concentrations of 5.3 µg/l and 1.9 µg/l, respectively. The MCL for Di (2-ethylhexyl) phthalate is 6.0 µg/l. The 5.3 µg/l detection in September 1998 was from a water sample collected from well #1, prior to entering the manifold. The 1.9 µg/l detection in September 2000 was at the manifold and applied to wells #1-3. There were no detections for Di (2-ethylhexyl) phthalate in the split confirmation samples. No SOCs detections were recorded for wells #5 and #6.

From August 1994 to September 2000, nitrates were detected in nine water samples collected from the Well 1, 2, 3 Booster at concentrations ranging from 3.72 milligrams per liter (mg/l) to 6.23 mg/l. From August 1994 to September 2000, nitrates were detected in ten water samples collected from the Main Booster Station at concentrations ranging from 3.9 mg/l to 6.31 mg/l. These detections are below the MCL for nitrate of 10 mg/l.

From August 1994 to September 2000, arsenic was detected in three water samples collected from the Well 1, 2, 3 Booster and well #5 at concentrations ranging from 0.009 mg/l to 0.01 mg/l. From September 1994 to September 2000, arsenic was detected in four water samples collected from well #6 at concentrations ranging from 0.0051 mg/l to 0.01 mg/l. These concentrations are below the current MCL for arsenic of 0.05 mg/l. The Safe Drinking Water Act requires the United States Environmental Protection Agency (EPA) to revise the current MCL for arsenic. In January 2001, EPA published a new standard for arsenic in drinking water that requires public water supplies to reduce arsenic to 0.01 mg/l by 2006. EPA is reviewing this standard so that communities that need to reduce arsenic in drinking water can proceed with confidence that the new standard is based on sound science and accurate cost estimates.

In September 2000, barium was detected in a water sample collected from the Well 1, 2, 3 Booster at a concentration of 0.0 mg/l. From August 1994 to September 2000, barium was detected in three water samples collected from well #5 at concentrations ranging from 0.038 mg/l to 1.0 mg/l. From December 1997 to September 2000, barium was detected in two water samples collected from well #6 at concentrations of 0.039 mg/l and 0.04 mg/l, respectively. These detections are below the MCL for barium of 2.0 mg/l. In August 1994, cadmium was detected in one water sample collected from the Well 1, 2, 3 Booster and well #5 at a concentration of 0.0002 mg/l. In September 1994, cadmium was detected in one water sample collected from well #6 at a concentration of 0.0003 mg/l. These detections are far below the MCL for cadmium of 0.005 mg/l. In September 2000, chromium was detected in a water sample collected from the Well 1, 2, 3 Booster at a concentration of 0.016 mg/l. In December 1997 and again in September 2000, chromium was detected in two water samples collected from wells #5 and #6 at concentrations of 0.016 mg/l and 0.002 mg/l, respectively. These concentrations are far below the MCL for chromium of 0.1 mg/l. In August 1994, selenium was detected in a water sample collected from the Well 1, 2, 3 Booster at a concentration of 0.0072 mg/l. In August 1994 and again in December 1997, selenium was detected in two water samples collected from well #5 at concentrations of 0.0089 mg/l and 0.003 mg/l, respectively. In December 1997, selenium was detected in a water sample collected from the well #6 at a concentration of 0.004 mg/l. These detections are far below the MCL for selenium of 0.05 mg/l. The inorganic compounds (IOCs), arsenic, barium, cadmium, chromium, and selenium detected in water samples collected from the Well 1, 2, 3 Booster and wells #5 and #6 may be naturally occurring in the formations in which the wells were developed.

A Sanitary Survey conducted in 2000 determined that the City of Kimberly drinking water system was in substantial compliance with current public drinking water system standards. In terms of total susceptibility, wells #1 and #2 rated high for susceptibility to potential IOC, VOC, SOC, and microbial contamination. The high susceptibility rating is due to aquifer properties, well construction, land use, and the presence of a nitrate priority area and an organics priority area (for pesticides) within the source water assessment area. In terms of total susceptibility, well #3 rated moderate for susceptibility to potential IOC, VOC, SOC, and microbial contamination. Except for superior well construction, Well #3 has properties similar to wells #1 and #2 which contribute to the overall rating. In terms of total susceptibility, wells #5 and #6 rated moderate for susceptibility to potential IOC, SOC, and microbial contamination. These ratings are due to aquifer properties, land use, and the presence of a nitrate and an organics priority area within the source water assessment area. Wells #5 and #6 rated automatically high for VOC susceptibility due to the detection of pce in water samples collected from the Main Booster Station. Well #1 automatically rated high for SOC susceptibility due to the detection of Di (2-ethylhexyl) phthalate in water samples collected from the Well 1, 2, 3 Booster.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Kimberly, source water protection activities should first focus developing a signed, written agreement between the City of Kimberly and the owners of property within a 50-foot radius of well #3 regarding best management practices near the well. Since nitrate detections (in all five wells) and unconfirmed detections of Di (2-ethylhexyl) phthalate (in well #1 only) approach or exceed 50% of the MCL and arsenic concentrations approach or exceed the proposed MCL, the City of Kimberly should investigate various systems like ion exchange, reverse osmosis, or activated alumina that could be used to treat these chemicals. Disinfection practices should be optimized to minimize the formation of trihalomethanes in the treated drinking water. Any spills from the identified potential contaminant sources in the source water assessment areas should be monitored carefully. Most of the source water protection designated area is outside the direct jurisdiction of The City of Kimberly. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside the direct jurisdiction of the City of Kimberly. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE CITY OF KIMBERLY, TWIN FALLS COUNTY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Kimberly drinking water system is a community system that serves approximately 2,361 people through 979 connections. The five groundwater wells are located in the City of Kimberly, east of Twin Falls, north of Rock Creek, and south of the Snake River (Figure 1).

Nitrates and arsenic represent the main water chemistry issues recorded for the five wells. Nitrate concentrations detected in water samples collected from the five Kimberly wells from August 1994 to September 2000 range from 37% to 63% of the MCL for nitrate, 10 mg/l. While arsenic concentrations detected in water samples collected from both manifolds are below the current MCL of 0.05 mg/l, historic levels would approach or exceed the proposed MCL of 0.01 mg/l for arsenic. The SOC, Di (2-ethylhexyl) phthalate, is a water chemistry issue for well #1. Unconfirmed Di (2-ethylhexyl) phthalate concentrations detected in one of two water samples collected from the well#1 was 88% of the MCL for Di (2-ethylhexyl) phthalate. Concentrations of the VOC, pce, detected in water samples collected from the Main Booster Station and Well #6 have decreased since the initial detection in 1995 and are approximately 10% of the MCL for pce.

Barium, cadmium, chromium, and selenium were detected in the past in water samples collected from both boosters and wells #5 and #6. These concentrations are well below the respective MCLs for these chemicals. The IOCs arsenic, barium, cadmium, chromium, and selenium detected in the City of Kimberly drinking water system may be naturally occurring in the formations in which the wells were developed. No microbial contaminants were detected in water samples collected from the City of Kimberly wells or boosters.

Defining the Zones of Contribution – Delineation

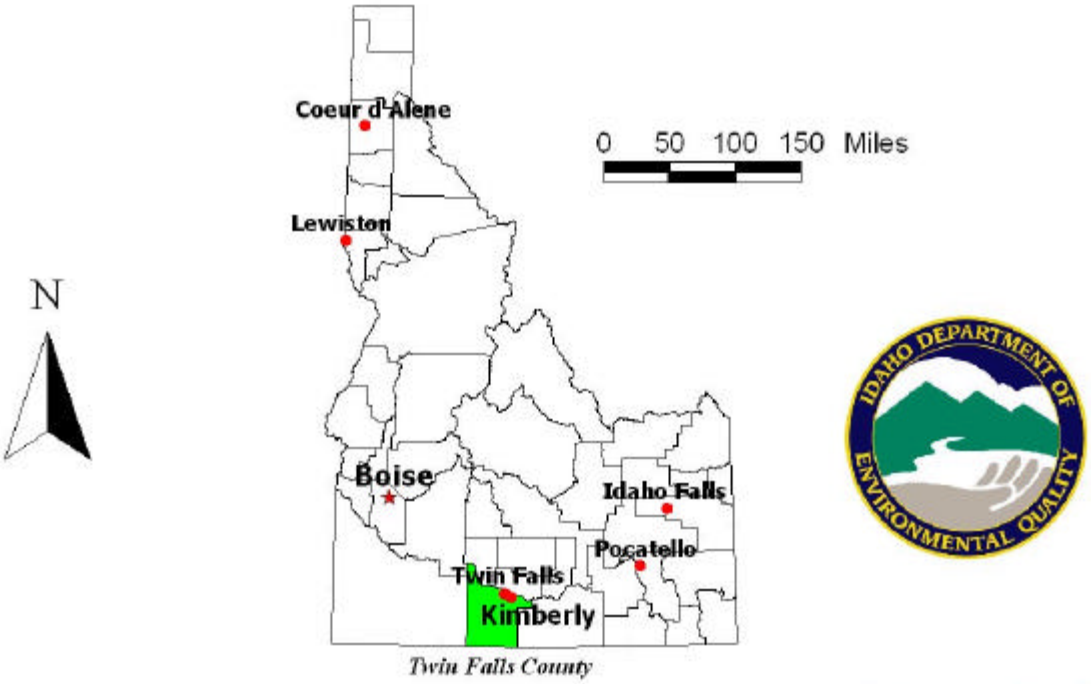
The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Snake River Plain Aquifer in the vicinity of Kimberly, Idaho. The computer model used site specific data, assimilated by DEQ from a variety of sources including the City of Kimberly well logs, other local area well logs, and hydrogeologic reports summarized below.

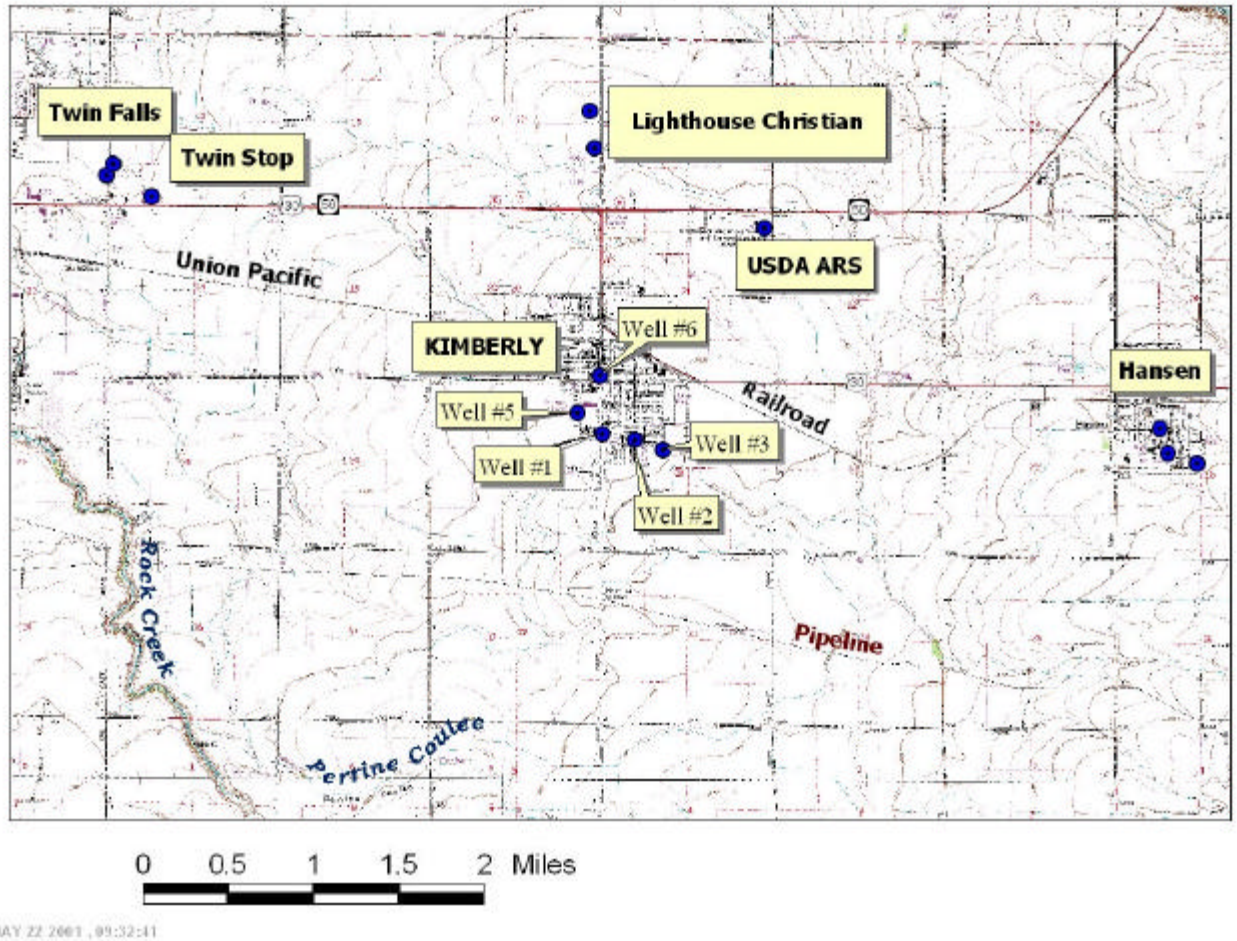
The City of Kimberly wells extract water from the Banbury Basalt which overlies the Idavada Volcanics. The Idavada Volcanics unit consists of welded ash and tuff, rhyolite, and some basalt flows. The Idavada Volcanics are up to 2,000 feet thick in the Kimberly area and contain fractures and columnar joints, allowing some mixing of the geothermal groundwater in the Idavada Volcanics with groundwater in the Banbury Basalt (Lewis and Young, 1989). The Banbury Basalt is of variable thickness and is the primary non-geothermal aquifer in the Kimberly area (Moffat and Jones, 1984). Basalt flows fracture at the surface as they cool. The fractures occur in the horizontal direction throughout the flow with localized, vertical fractures present in some areas. The Banbury Basalt is fractured and contains thin sedimentary interbeds. These fractures and sedimentary interbeds comprise the water producing zones in the Banbury Basalt. (Cosgrove, et al., 1997).

Regional ground water flow is to the north, but may vary with proximity to major creeks and the Snake River (Lewis and Young, 1989). Precipitation in the area is around 9 inches per year (Lewis and Young, 1989), however, a significant amount of infiltration occurs due to irrigation practices as well as canal seepage and loss from surface waters.

Due to their proximity to each other, the ground water capture zones for the five wells overlap and interact with each other. Consequently, the capture zones were combined into one delineated source water assessment area. 1.25 miles wide and 4.5 miles long, extending south from the wellheads (Figure 2). The actual data used by DEQ in determining the source water assessment delineation area is available upon request.

Figure 1: Geographic Location of the City of Kimberly





Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases. The dominant land use outside the City of Kimberly source water assessment area is irrigated agriculture. Land use within the immediate area of the wellheads is urban (commercial, light industrial, and residential) as well as irrigated agriculture.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted during April 2001. This process involved identifying and documenting potential contaminant sources within the City of Kimberly Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The City of Kimberly conducted an enhanced potential contaminant inventory in May 2001 to confirm the presence of potential contaminant sources in the source water assessment area.

The City of Kimberly wells have a delineated source water assessment area that contains twenty-five identified potential contaminant sources; twenty-two in the 3-year time of travel zone (Table 1). Figure 2 shows the location of these potential contaminant sites relative to the wellheads.

Highway 30 and the Union Pacific Railroad represent potential sources of contamination because they are transportation corridors. Accidental releases of contaminants on these corridors, within the source water assessment area, could spill IOCs, VOCs, SOCs, or microbial contaminants on to the well-drained soil. These potential contaminants could migrate down through the fractured basalt in the vadose zone and possibly contaminate the City of Kimberly's source water. Similarly, the Low Line Canal is listed as a potential contaminant source because leakage from canals and surface water bodies in the source water assessment area is known to recharge the aquifer (Cosgrove, et al., 1997). Consequently, if a spill occurs and contaminants are transported through the source water assessment area by the canal, contaminants could leach into the City of Kimberly's source water.

Section 3. Susceptibility Analyses

The water system's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking. The susceptibility ranking worksheets can be found in Attachment A.

Figure 2. City of Kimberly Delineation Map and Potential Contaminant Source Locations

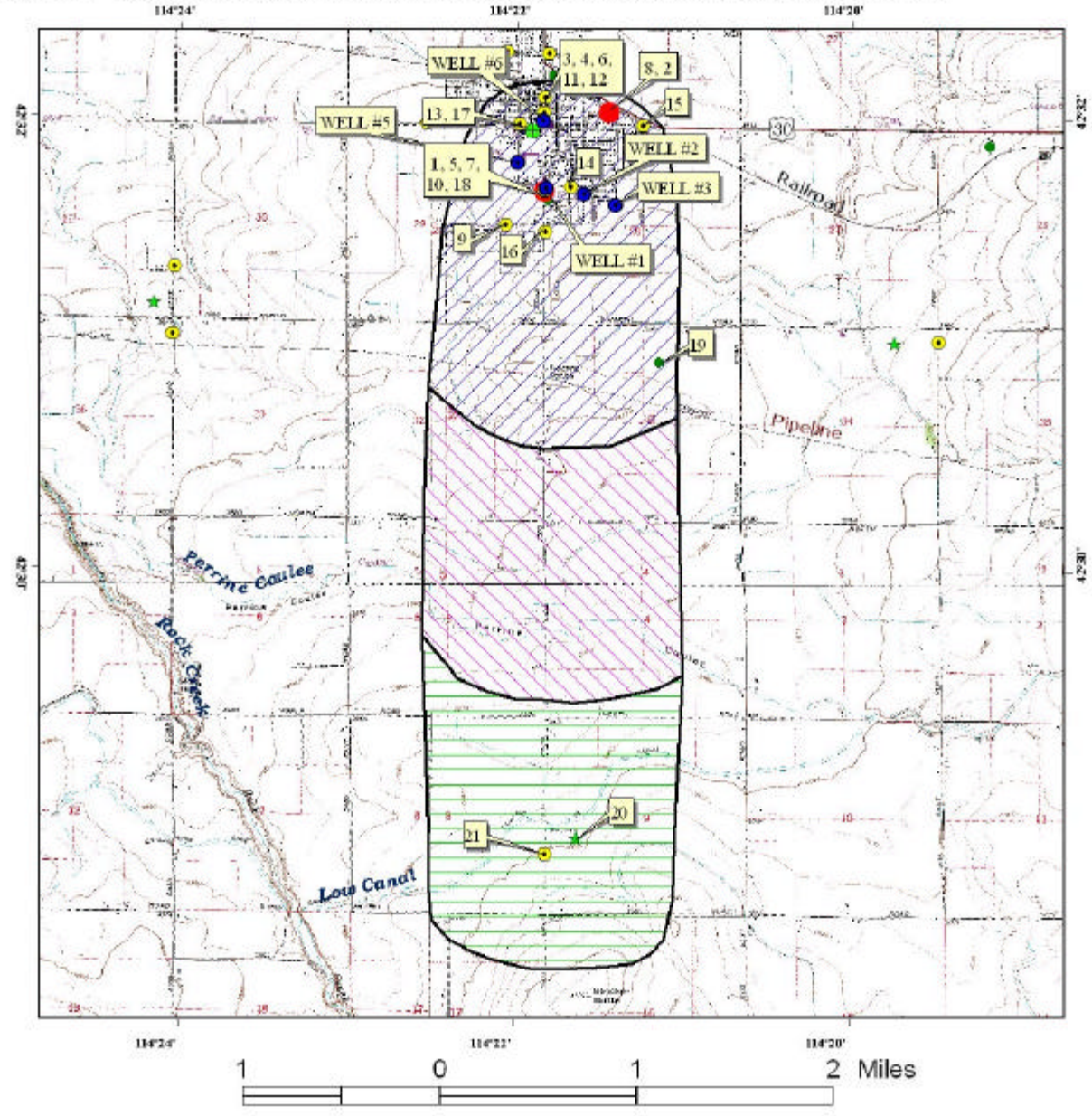


Table 1. The City of Kimberly Potential Contaminant Inventory

Site #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
1	LUST[3] Site Cleanup Completed , Impact: Unknown	0-3	Database Search	VOC, SOC
2	LUST Site Cleanup Completed , Impact: Unknown	0-3	Database Search	VOC, SOC, Microbes
3	UST[4]; Gas Station, Open	0-3	Database Search	VOC, SOC
4	Not Listed; UST, Closed	0-3	Database Search	VOC, SOC
5	State Government; UST, Closed	0-3	Database Search	IOC, VOC
6	Intermountain Bean Co., UST, Closed	0-3	Database Search	VOC, SOC, Microbes
7	UST; Gas Station, Closed	0-3	Database Search	VOC, SOC
8	Snake River Bean Co., UST, Closed	0-3	Database Search	VOC, SOC
9	Engravers, Glassware Manufacturer	0-3	Database Search	IOC
10	Automobile Repair and Service	0-3	Database Search	IOC, VOC, SOC
11	Feed Dealer	0-3	Database Search	IOC, SOC, Microbes
12	Cleaners	0-3	Database Search	VOC
13	Funeral Directors	0-3	Database Search	IOC, SOC
14	Lawn Maintenance	0-3	Database Search	IOC, SOC
15	Automobile Repair and Service	0-3	Database Search	IOC, VOC, SOC
16	General Contractor	0-3	Database Search	IOC, VOC, SOC
17	USDA Soil and Water Management Research	0-3	Database Search	IOC, SOC
18	Maverick Country Store	0-3	Database Search	IOC, VOC, SOC
19	US West Communications, no radio tower	0-3	Enhanced Inventory	IOC, VOC, SOC
20	1001-2000 cows	6-10	Database Search	IOC, Microbes
21	Dairy	6-10	Database Search	IOC, Microbes
22	Highway 30	0-3	GIS Map	IOC, VOC, SOC, Microbes
23	Union Pacific Railroad	0-3	GIS Map	IOC, VOC, SOC, Microbes
24	Pipeline	0-3	GIS Map	VOC, SOC
25	Low Line Canal	6-10	GIS Map	IOC, VOC, SOC, Microbes

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
[3] UST = underground storage tank
[4] LUST = Leaking underground storage tank

Hydrologic Sensitivity

Hydrologic sensitivity to potential contamination is high for all five wells (Table 2). This reflects the moderately-drained to well-drained nature of the soils, which could allow rapid downward movement of contaminants. According to the well logs, the vadose zone (zone from land surface to the water table) is predominantly fractured basalt, which could provide a pathway for potential contaminants, allowing them to mix with the source water. Ground water exists within 300 feet of the surface and the wells do not contain at least 50 cumulative feet of low permeability units that could retard downward movement of contaminants.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. The IDWR Well Construction Standards Rules (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the Recommended Standards for Water Works (1997) during construction. The system construction score is moderate for wells #1 and #2, and low for wells #3, #5, and #6 (Table 2). A low system construction score is considered protective of source water against potential contaminants. A Sanitary Survey, conducted in 2000, found that the system was in substantial compliance with

wellhead and surface seal standards. The wells are not in the 100-year flood zone and are protected from surface flooding.

Well logs exist for all five wells and show that the highest water production zones for wells #3, #5, and #6 are over 100 feet below static water level. Greater distance between the static water level and the major production zone creates a buffer between potential contaminants and the source water intake, providing greater opportunity for attenuation or adsorption of contaminants. The casings of wells #3, #5, and #6 were extended into low a permeability unit, protecting the wells from laterally migrating contaminants. Wells #1 and #2 earned a moderate ranking because the highest water production zones for the wells is less than 100 feet below the static water level. Also the casings and annular seal for well #1 does not extend at least 20 feet into an impermeable layer and the casing for well #2 does not extend into an impermeable layer. Only well #5 met all IDWR Well Construction Standards and Rules (1993). The casing diameters for wells #1 and #2 are 16 inches and 12 inches, respectively, with 0.25-inch thick walls. The casing thickness for both wells does not meet IDWR standards of 0.375-inch thick walls for 16 and 12-inch diameter casing as listed in the Recommended Standards for Water Works (1997). Wells #3 and #6 have no pump test data recorded on their well logs. Wells #1 and #2 had pump test durations of 4 and 5 hours, respectively. Under current standards, PWS wells producing less than 50 gallons per minute (gpm) are required to have a 4 hour minimum pump test and those producing greater than 50 gpm are required to have a 6 hour minimum pump test. Additionally, PWS wells should have a 50-foot radius buffer zone around the wellhead. Well #3 does not contain a 50-foot buffer. An agreement between the City of Kimberly and adjacent property owners regarding practices around the wellhead is in place according to the 2000 Sanitary Survey.

Potential Contaminant Sources and Land Use

All five City of Kimberly wells rated high for potential contaminant sources and land use (Table 3) for IOCs (e.g., nitrates), VOCs (e.g., petroleum products) and SOCs (e.g., pesticides), and moderate for microbial contamination (e.g., total coliform). Agricultural land use, the presence of a nitrate priority and an organics priority area (for pesticides), and the presence of numerous potential contaminant sources within the delineated source water assessment areas contributed to the high and moderate ratings. The moderate rating for potential microbial contamination is due to the fact that potential microbial contamination sources are not counted outside of the 3-year time of travel. It is unlikely that microbes released in the 6 and 10-year time of travel zones would survive to contaminate the source water.

Final Susceptibility Ranking

A detection above a drinking water standard MCL or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) and a large percentage of agricultural land contribute greatly to the overall ranking. In terms of total susceptibility, wells #1 and #2 rated high for susceptibility to potential IOC, VOC, SOC, and microbial contamination. The high susceptibility rating is due to aquifer properties, well construction, land use, and the presence of a nitrate priority area and an organics priority area (for pesticides) within the source water assessment area. In terms of total susceptibility, well #3 rated moderate for susceptibility to potential IOC, VOC, SOC, and microbial contamination. Except for superior well construction, Well #3 has properties similar to wells #1 and #2 which contribute to the overall rating. In terms of total susceptibility, wells #5 and #6 rated moderate for susceptibility to potential IOC, SOC, and microbial contamination. These ratings are due to aquifer properties, land use, and the presence of a nitrate and an organics priority area within the source water assessment area. Wells #5 and #6 rated automatically high for VOC susceptibility due to the detection of pce in water samples collected from the Main Booster Station. Well #1 automatically rated high for SOC susceptibility due to the detection of Di (2-ethylhexyl) phthalate in water samples collected from the well.

Table 2. Summary of the City of Kimberly Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #1	H	H	H	H	M	M	H	H	H*	H
Well #2	H	H	H	H	M	M	H	H	H	H
Well #3	H	H	H	H	M	L	M	M	M	M
Well #5	H	H	H	H	M	L	M	H**	M	M
Well #6	H	H	H	H	M	L	M	H**	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
H* = Well ranked automatically high for susceptibility to potential SOC contamination due to an SOC detection in water samples collected from Well 1.
H = Well ranked automatically high for susceptibility to potential VOC contamination due to tetrachloroethylene (pce) detections in water samples collected from the Main Water Booster and Well #6.**

Susceptibility Summary

Nitrates and arsenic represent the main water chemistry issues recorded for the five wells. Nitrate concentrations detected in water samples collected from the five Kimberly wells from August 1994 to September 2000 range from 37% to 63% of the MCL for nitrate, 10 mg/l. While arsenic concentrations detected in water samples collected from both manifolds are below the current MCL of 0.05 mg/l, historic levels would approach or exceed the proposed MCL of 0.01 mg/l for arsenic. The SOC, Di (2-ethylhexyl) phthalate, is a water chemistry issue for well #1. Unconfirmed Di (2-ethylhexyl) phthalate concentrations detected in one of two water samples collected from well #1 was 88% of the MCL for Di (2-ethylhexyl) phthalate. Concentrations of the VOC, pce, detected in water samples collected from the Main Booster Station and well #6 have decreased since the initial detection in 1995 and are approximately 10% of the MCL for pce.

Barium, cadmium, chromium, and selenium were detected in the past in water samples collected both boosters and wells #5 and #6. These concentrations are well below the respective MCLs for these chemicals. The IOCs arsenic, barium, cadmium, chromium, and selenium detected in the City of Kimberly drinking water system may be naturally occurring in the formations in which the wells were developed. No microbial contaminants were detected in water samples collected from the City of Kimberly wells or boosters.

A nitrate priority area and an organics priority area (for pesticides) cross the City of Kimberly source water areas. Countywide farm chemical use is considered high in this area and the delineated source water area for the wells is surrounded by a significant amount of irrigated agricultural land. Additionally, multiple potential sources of contamination exist in the City of Kimberly source water area and the aquifer properties make the source water susceptible to potential spills from these sites.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the City of Kimberly, source water protection activities should first focus developing a signed, written agreement between the City of Kimberly and the owners of property within a 50-foot radius of well #3 regarding best management practices near the well. Since nitrate levels (in all five wells) and unconfirmed Di (2-ethylhexyl) phthalate (in well #1only) levels approach or exceed 50% of the MCL and arsenic concentrations approach or exceed the proposed MCL, the City of Kimberly should investigate various systems like ion exchange, reverse osmosis, or activated alumina that could be used to treat these chemicals. Disinfection practices should be optimized to minimize the formation of trihalomethanes in the treated drinking water.

Any spills from the identified potential contaminant sources in the source water assessment areas should be monitored carefully to prevent contaminants from infiltrating to the ground water producing zones. The highly fractured nature of the basalt aquifer could lead to cross-contamination from shallower fractures to deeper fractures depending on well construction. Most of the designated source water protection area is outside the direct jurisdiction of the City of Kimberly. Twin Falls County has a Wellhead Protection Overlay District Ordinance that can provide additional protection for areas outside the direct jurisdiction of the City of Kimberly. Partnerships with state and local agencies and industry groups should be established and are critical to success. Continued vigilance in keeping the well protected from surface flooding can also keep the potential for contamination reduced.

Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. Source water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service. A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Twin Falls Regional DEQ Office (208) 736-2190

State DEQ Office (208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with wellhead protection strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as "Superfund" is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Cosgrove, D. M., Johnson, G. S., Brockway, C. E., Robison, C. W., *Geohydrology and Development of a Steady State Ground Water Model for the Twin Falls, Idaho Area*, 1997, Idaho Water Resources Research Institute, University of Idaho, Research Technical Completion Report.

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

Idaho State Department of Agriculture, 1998. Unpublished Data.

Idaho Department of Environmental Quality, 1997. Design Standards for Public Drinking Water Systems. IDAPA 58.01.08.550.01.

Idaho Department of Water Administration, 1966. Groundwater conditions in Idaho. Water Information Bulletin No. 1.

Idaho Department of Water Resources, 1993. Administrative Rules of the Idaho Water Resource Board: Well Construction Standards Rules. IDAPA 37.03.09.

Lewis, R. E., Young, H. W., *The Hydrothermal System in Central Twin Falls County, Idaho*, 1989, USGS Paper 88-4152.

Lewis, R. E., Young, H. W., *Geothermal Resources in the Banbury Hat Springs Area, Twin Falls County, Idaho*, 1982, USGS Water Supply Paper 2186.

Moffatt, R.L., Jones M. L., *Availability and Chemistry of Ground Water on the Bruneau Plateau and Adjacent Eastern Plain in Twin Falls County, South-Central Idaho*, 1984, USGS Water Resources Investigation Report 8404056.

Ralston, D. R., Young, N. C., *Water Resources of the Twin Falls Tract Kimberly County, Idaho*, 1971, Idaho Department of Water Administration, Water Information Bulletin No. 22.

Attachment A

City of Kimberly
Susceptibility Analysis
Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : KIMBERLY CITY OF Well# : WELL #1 Public Water System Number 5420033 5/24/01 3:49:44 PM

1. System Construction		SCORE				
Drill Date	3/18/59					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	2000				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	NO	1				
Well located outside the 100 year flood plain	YES	0				
	Total System Construction Score	4				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
	Total Hydrologic Score	6				
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN	2	2	2	2	
Farm chemical use high	YES	2	0	2		
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	NO	YES	NO	
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	13	17	20	5	
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8	
Sources of Class II or III leacheable contaminants or	YES	9	13	5		
4 Points Maximum		4	4	4		
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	2	0	
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4	
	Total Potential Contaminant Source / Land Use Score - Zone 1B	18	16	18	12	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	YES	0	0	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2		
	Potential Contaminant Source / Land Use Score - Zone II	2	2	2	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1		
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0	
Cumulative Potential Contaminant / Land Use Score		27	23	27	14	
4. Final Susceptibility Source Score		15	15	15	15	
5. Final Well Ranking		High	High	High*	High	

* Well rated automatically high due to a detection of the SOC Di (2-ethylhexyl) phthalate in water samples collected from the Well #1, 2, 3 manifold.

Ground Water Susceptibility Report Public Water System Name :KIMBERLY CITY OF Well# : WELL #2 Public Water System Number 5420033 5/24/01 3:49:44 PM

1. System Construction		SCORE				
Drill Date	10/15/50					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	2000				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	NO	1				
Well located outside the 100 year flood plain	YES	0				
	Total System Construction Score	4				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
	Total Hydrologic Score	6				
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN	2	2	2	2	
Farm chemical use high	YES	2	0	2		
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	NO	NO	NO	
	Total Potential Contaminant Source/Land Use Score - Zone 1A	4	2	4	2	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	13	17	20	5	
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8	
Sources of Class II or III leacheable contaminants or	YES	9	13	5		
4 Points Maximum		4	4	4		
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	2	0	
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land	4	4	4	4	
	Total Potential Contaminant Source / Land Use Score - Zone 1B	18	16	18	12	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	NO	0	0	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2		
	Potential Contaminant Source / Land Use Score - Zone II	2	2	2	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	YES	1	1	1		
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1		
	Total Potential Contaminant Source / Land Use Score - Zone III	3	3	3	0	
Cumulative Potential Contaminant / Land Use Score		27	23	27	14	
4. Final Susceptibility Source Score		15	15	15	15	
5. Final Well Ranking		High	High	High	High	

1. System Construction		SCORE				
Drill Date		9/24/94				
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	2000			
Well meets IDWR construction standards		NO	1			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		YES	0			
Highest production 100 feet below static water level		YES	0			
Well located outside the 100 year flood plain		YES	0			
	Total System Construction Score		1			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		NO	2			
Vadose zone composed of gravel, fractured rock or unknown		YES	1			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		NO	2			
	Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A		URBAN	2	2	2	2
Farm chemical use high		YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A		YES	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	13	17	20	5
(Score = # Sources X 2) 8 Points Maximum			8	8	8	8
Sources of Class II or III leacheable contaminants or		YES	9	13	5	
4 Points Maximum			4	4	4	
Zone 1B contains or intercepts a Group 1 Area		YES	2	0	2	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land		4	4	4	4
	Total Potential Contaminant Source / Land Use Score - Zone 1B		18	16	18	12
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present		NO	0	0	0	
Sources of Class II or III leacheable contaminants or		NO	0	0	0	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land		2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present		YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score			27	23	27	14
4. Final Susceptibility Source Score			12	12	12	12
5. Final Well Ranking			Moderate	Moderate	Moderate	Moderate

1. System Construction		SCORE				
Drill Date		9/16/80				
Driller Log Available		YES				
Sanitary Survey (if yes, indicate date of last survey)		YES	2000			
Well meets IDWR construction standards		YES	0			
Wellhead and surface seal maintained		YES	0			
Casing and annular seal extend to low permeability unit		YES	0			
Highest production 100 feet below static water level		YES	0			
Well located outside the 100 year flood plain		YES	0			
	Total System Construction Score		0			
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained		NO	2			
Vadose zone composed of gravel, fractured rock or unknown		YES	1			
Depth to first water > 300 feet		NO	1			
Aquitard present with > 50 feet cumulative thickness		NO	2			
	Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A		URBAN	2	2	2	2
Farm chemical use high		YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A		YES	NO	YES	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)		YES	13	17	20	5
(Score = # Sources X 2) 8 Points Maximum			8	8	8	8
Sources of Class II or III leacheable contaminants or		YES	9	13	5	
4 Points Maximum			4	4	4	
Zone 1B contains or intercepts a Group 1 Area		YES	2	0	2	0
Land use Zone 1B	Greater Than 50% Irrigated Agricultural Land		4	4	4	4
	Total Potential Contaminant Source / Land Use Score - Zone 1B		18	16	18	12
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present		NO	0	0	0	
Sources of Class II or III leacheable contaminants or		NO	0	0	0	
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land		2	2	2	
	Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present		YES	1	1	1	
Sources of Class II or III leacheable contaminants or		YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of		YES	1	1	1	
	Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score			27	23	27	14
4. Final Susceptibility Source Score			11	11	11	11
5. Final Well Ranking			Moderate	High*	Moderate	Moderate

* Well rated automatically high due to a detection of the VOC, tetrachloroethylene (pce) in water samples collected from the Well #5 and #6 manifold.

Ground Water Susceptibility Report Public Water System Name : KIMBERLY CITY OF Well# : WELL #6 Public Water System Number 5420033 5/24/01 3:49:44 PM

1. System Construction		SCORE			
Drill Date	10/18/95				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	2000			
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	YES	0			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		1			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		6			
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN	2	2	2	2
Farm chemical use high	YES	2	0	2	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	YES	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		4	2	4	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	13	17	20	5
(Score = # Sources X 2) 8 Points Maximum		8	8	8	8
Sources of Class II or III leacheable contaminants or	YES	9	13	5	
4 Points Maximum		4	4	4	
Zone 1B contains or intercepts a Group 1 Area	YES	2	0	2	0
Land use Zone 1B Greater Than 50% Irrigated Agricultural Land		4	4	4	4
Total Potential Contaminant Source / Land Use Score - Zone 1B		18	16	18	12
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II Greater Than 50% Irrigated Agricultural Land		2	2	2	
Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	YES	1	1	1	
Is there irrigated agricultural lands that occupy > 50% of	YES	1	1	1	
Total Potential Contaminant Source / Land Use Score - Zone III		3	3	3	0
Cumulative Potential Contaminant / Land Use Score		27	23	27	14
4. Final Susceptibility Source Score		12	12	12	12
5. Final Well Ranking		Moderate	High*	Moderate	Moderate

* Well rated automatically high due to a detection of the VOC, tetrachloroethylene (pce) in water samples collected from the Well #5 and #6 manifold.